

THE LARGER MOTHS (MACROLEPIDOPTERA) OF CULM GRASSLAND, NORTH DEVON

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Summary

CULM GRASSLAND is the local name given to species-rich purple moor grass *Molinia caerulea* and rush *Juncus* pasture. The larger moths (macrolepidoptera) of four culm grassland sites in North Devon were surveyed to determine which species are characteristic of the habitat, particularly which rare and uncommon ones, and whether site management may be beneficially adjusted to favour these moths.

A total of 3,600 individuals of 193 species was recorded. Three nationally scarce species were caught, Narrow-bordered Bee Hawk-moth *Hemaris tityus*, Devon Carpet *Lampropteryx otregiata* and Double Line *Mythimna turca*. A further 29 nationally Local species were found. This high number of restricted species suggests that culm grassland is an important habitat for moths.

The Narrow-bordered Bee Hawk-moth and Double Line are priority species for conservation action within the UK Biodiversity Action Plan. The latter was the fifth most abundant species caught on the culm grassland sites that were surveyed. The larvae of both species feed on plants typical of the open sward (although the food plants of the Double Line need verification).

Only thirty-seven (19%) of the 193 species caught show a clear preference for feeding as larvae on grasses and herbs typical of open culm grassland, as opposed to ninety (47%) on plants typical of associated scrub and woodland. Consequently it is recommended that site management should aim to conserve not just the open sward, but also associated woodland, scrub and hedges. The open sward is, however, relatively more important for scarce and local moths, probably supporting 12 such species compared to 15 for woodland, scrub and hedges. Thus, just as for the Marsh Fritillary *Eurodryas aurinia*, a butterfly for which culm grasslands are a national stronghold, care should be taken to burn or cut no more than half of a site in any one year.

Introduction

Culm grassland is the local name given to the species-rich purple moor grass and rush pastures that occur on the acidic, poorly-drained soils of North Devon and north-east Cornwall. The habitat has experienced severe declines in recent decades, largely as a result of agricultural intensification, and has its own habitat action plan within the UK Biodiversity Action Plan (UK Steering Group, 1995).

Culm grassland sites possess an intricate, but distinctive, mix of various types of poor fen and mire plant communities (Wolton, 1993). Characteristically, sites contain a mix of fen meadow, rush pasture and wet heath and are dominated either by purple moor grass or by rushes, but with a wide variety of other plants present, in

particular sedges *Carex* spp. and herbs such as devil's-bit scabious *Succisa pratensis* and meadow thistle *Cirsium dissectum*. Frequently heathland plants such as heather *Calluna vulgaris* and western dwarf gorse *Ulex gallii* are present, together with bog mosses *Sphagnum* spp.. Stands of tall fen plants, in particular meadowsweet *Filipendula ulmaria*, are occasional. The main National Vegetation Communities (NVC) present are M16b, M23b, M24c, M25c and M27c (Rodwell, 1992).

Culm grasslands usually contain woodland and scrub, often in the form of small woods or thick hedges dominated by oak *Quercus* spp., birch *Betula* spp. and hazel *Corylus avellana*. Sites often have patches of willow *Salix* spp. scrub within them. These trees and shrubs possess luxuriant moss and lichen epiphytic communities.

Traditionally culm grassland is used as rough summer grazing by cattle. Sites dominated by purple moor grass are usually burnt annually or biennially and those dominated by rushes topped (that is, cut at a height of 10 cm or more). Grazing on its own is seldom sufficient to prevent sites becoming rank and invaded by scrub.

The aims of this study were to determine which larger moths (macrolepidoptera) are characteristic of culm grassland, whether the habitat supports any particular specialities and whether management practices may be beneficially adjusted to favour the moth fauna. The moth records made at Dunsdon Farm by Spalding (1989) are incorporated into this paper.

Study sites and sampling methods

Four culm grassland sites in North Devon were selected for sampling: Dunsdon Farm, Coombe Meadow, Hollow Moor and Southmoor Farm. The sites were selected on the basis that together they exhibited almost the full range of vegetation communities typical of Culm grassland. A description of each of the four sites is given in Appendix 1.

The majority of sampling was carried out using portable "Heath" light traps. Up to three Heath traps were used on any one night on a site. In addition, at Dunsdon Farm a mercury-vapour light, positioned above a white sheet and powered by a portable generator, was used on seven nights. Moths were caught as they came to the light and stored in boxes until the end of the session so that numbers could be counted (Spalding, 1989).

It was intended to sample each of the sites at least once a month between April and September. This was achieved at Dunsdon Farm and Hollow Moor, and also at Coombe Meadow except for April. At Southmoor Farm, the owners declined to grant access permission after the end of June 1987. Table 1 presents details of the number of trap nights at each site, and the first and last dates of trapping. All trapping was carried out during 1987 and 1988.

In addition to the use of ultra-violet lights a few moths were caught with the aid of a strong halogen searchlight and a hand net, and by sugaring. Also some moths were caught by hand net during daytime visits and at dusk.

Results

The species of macrolepidoptera caught at each of the four study sites are given in Appendix 2, together with the number of individuals caught. No trapping was carried out after 22 June on Southmoor Farm, which explains the low number of species caught there. Numbers are given so as to provide a rough index of the relative abundance of species, albeit a very crude one due to differences in sampling effort during the course of the year and to differences between species in their response to ultra-violet light and weather conditions. Over 3,600 individuals of 193 larger moth species were recorded. Half of these species were recorded at three or more sites.

Table 1. Trapping effort at each study site, and first and last dates of trapping.

Study site	Number of light trap nights		Number of nights when traps operated	First date of trapping	Last date of trapping
	Heath trap	MV light			
Dunsdon Farm	26	7	10	11 March	3 September
Coombe Meadow	19	0	9	17 May	21 September
Hollow Moor	27	0	16	24 April	4 October
Southmoor Farm	10	0	10	12 April	22 June

Table 2 picks out those rare, uncommon and local species as classified by Waring (1994, 1999), together with details of their larval food plants. Three species are nationally-scarce and a further twenty-nine are nationally-local.

Further information on larval food plants is given in Table 3, this time for all species of moth caught. Thirty-seven species (19% of the total catch) feed only on plants typical of the open sward of culm grassland, while ninety (47%) feed only on those typical of associated scrub and woodland. For scarce and local moths a greater proportion (12 species: 37.5%) probably feed on plants typical of the open sward, compared to those of woodland and scrub (16 species: 50%).

Discussion

The high number (32) of scarce or local species strengthens the case for the conservation of culm grassland together with associated woodland and scrub. However, just how important the habitat may be for moths compared to other habitats is uncertain, since no comparable studies appear to have been published.

C. Gibson (personal communication) found ten of the thirty-two scarce or local species to be common on culm grasslands near Chulmleigh (grid reference SS 686145) in 1969-70, and rarely on other habitats in that part of mid-Devon. These species were Devon Carpet, Ruddy Highflyer, Double Line, Wood Carpet, Barred UMBER, Lunar Thorn, Brussels Lace, Striped Wainscot, Red Sword-grass and Small Rufous. He also found the nationally scarce (Grade B) Cloaked Carpet *Euphyia biangulata* frequently on culm grassland. I have myself recorded two of the above

ten species, Double Line and Brussels Lace, at Locks Park Farm (SS 518023) near Hatherleigh, which is 1 km away from the nearest culm grassland site, but not twenty-three of the thirty-two species despite frequent trapping over a number of years. In all, just fifteen local and one scarce species (out of 159), have been recorded at Locks Park Farm, adding weight to the suggestion that culm grassland supports an unusually large number of restricted species.

Table 2. Species with restricted or local distributions (Waring, 1994, 1999), together with details of their larval food plants (Skinner, 1998). Only those food plants which occur in or near culm grassland sites are included.

Species	Larval food plant
[Status: Nationally Scarce grade B: recorded from 31-100 of the 10 km grid squares in Britain since 1980]	
Narrow-bordered Bee Hawk-moth <i>Hemaris tityus</i>	Devil's-bit scabious <i>Succisa pratensis</i>
Devon Carpet <i>Lampropteryx otregiata</i>	Marsh bedstraw <i>Galium palustris</i> Fen bedstraw <i>G. uliginosum</i>
Double Line <i>Mythimna turca</i>	Grasses Wood rushes <i>Luzula</i> spp.
[Status: Nationally Local: known from 101-300 of the 10 km grid squares in Britain since 1980]	
Five-spot Burnet <i>Zygaena trifolii</i> Bird's-foot trefoils <i>Lotus</i> spp.	
Frosted Green <i>Polyphoca ridens</i>	Oak <i>Quercus</i> spp.
Cream Wave <i>Scopula floslactata</i>	In captivity on dandelion <i>Taraxacum</i> agg., knotgrass <i>Polygonum</i> spp. and dock <i>Rumex</i> spp.
Oblique Carpet <i>Orthonama vittata</i>	Bedstraws <i>Galium</i> spp.
Wood Carpet <i>Epirrhoe rivata</i>	Bedstraws <i>Galium</i> spp.
Ruddy Highflyer <i>Hydriomena ruberata</i>	Eared willow <i>Salix aurita</i>
Ling Pug <i>Eupithecia goossensiata</i>	Heather <i>Calluna vulgaris</i>
White-spotted Pug <i>Eupithecia tripunctaria</i>	Wild angelica seeds <i>Angelica sylvestris</i> Elder <i>Sambucus nigra</i>
Golden-rod Pug <i>Eupithecia virgaureata</i>	Grey willow <i>Salix cinerea</i> (first brood) Ragwort <i>Senecio</i> spp. (second brood)

Species	Larval food plant
Sharp-angled Peacock <i>Macaria alternata</i>	Willows <i>Salix</i> spp. Blackthorn <i>Prunus spinosa</i> Alder <i>Alnus glutinosa</i>
Barred Umber <i>Plagodis pulveraria</i>	Willows <i>Salix</i> spp. Birch <i>Betula</i> spp. Hazel <i>Corylus avellana</i> Hawthorn <i>Crataegus monogyna</i>
Scorched Wing <i>Plagodis dolabraria</i>	Oak <i>Quercus</i> spp. Birch <i>Betula</i> spp. Willows <i>Salix</i> spp.
Lilac Beauty <i>Apeira syringaria</i>	Ash <i>Fraxinus excelsior</i> Honeysuckle <i>Lonicera periclymenum</i>
Lunar Thorn <i>Selenia lunularia</i>	Broad-leaved trees
Brussels Lace <i>Cleorodes lichenaria</i>	Lichens
Small Engrailed <i>Ectropis crepuscularia</i>	Broad-leaved trees
Great Prominent <i>Peridea anceps</i>	Oak <i>Quercus</i> spp.
Lunar Marbled Brown <i>Drymonia ruficornis</i>	Oak <i>Quercus</i> spp.
Black Arches <i>Lymantria monacha</i>	Oak <i>Quercus</i> spp.
Least Black Arches <i>Nola confusalis</i>	Broadleaved trees
Beautiful Brocade <i>Lacanobia contigua</i>	Polyphagous
Striped Wainscot <i>Mythimna pudorina</i>	Purple moor grass <i>Molinia caerulea</i> Other grasses
Old Lady <i>Mormo maura</i>	Broadleaved trees
Double Kidney <i>Ipimorpha retusa</i>	Willows <i>Salix</i> spp.
Rufous Minor <i>Oligia versicolor</i>	Probably grasses
Red Sword-grass <i>Xylena vetusta</i>	Polyphagous
Lesser Common Rustic <i>Mesapamea didyma</i>	Grasses
Small Rufous <i>Coenobia rufa</i>	Jointed rush <i>Juncus articulatus</i> Soft rush <i>J. effusus</i>
Pinion-streaked Snout <i>Schrankia costaestrigalis</i>	Unknown, possibly willow <i>Salix</i> spp.

It is likely that further sampling would have substantially increased the species list on the four sites studied. Conversely some of the moths caught will have been strays or migrants.

The preponderance of moths feeding as larvae on plants associated with scrub and woodland as opposed to those of the open sward argues strongly in favour of retaining and where appropriate encouraging scrub and woodland on culm grassland sites. Small woodlands and thick overgrown hedges which gradually grade from tall trees through to small shrubs before the open sward commences should be encouraged, particularly where willows are plentiful. The structural diversity of wooded areas is more likely to be important for the moth fauna than plant species diversity. Many moths, in particular rare ones, have precise spatial requirements in terms of habitat diversity and structure, and are not restricted by their food plants (M. Edgington, personal communication).

The majority of moths caught that feed preferentially on plants associated with scrub and woodland are not host plant specific, but use a variety of different plants, usually woody ones. Willows stand out as being of special value, being the preferred food plant for fourteen species, as does oak, the preferred food plant for four local species.

A greater proportion of scarce and local moths feed as larvae on plants typical of the open sward than of common species. Two of the three nationally-scarce moths recorded feed on plants typical of the open sward, Narrow-bordered Bee Hawk-moth feeding on devil's-bit scabious and Double Line on grasses and wood rushes. Another culm grassland speciality, the Marsh Fritillary butterfly *Euphydryas aurinia*, also feeds on devil's-bit scabious. Like the Marsh Fritillary, the hawk-moth and Double Line are considered priority species for conservation action within the UK Biodiversity Action Plan and have their own species action plans (UK Biodiversity Group, 1999). The ranges of both moths in Great Britain have declined severely in recent decades, contracting to western Britain, particularly to south-west England. The third nationally-scarce moth, the Devon Carpet, may or may not be dependent on the open sward. Its larvae feed on marsh bedstraw and fen bedstraw. This fluttering moth is usually encountered near patches of scrub (A. Spalding, personal communication) and has been found in alder carr (P. Waring, personal communication).

The double line was the fifth most numerous species caught (102 individuals). Although Skinner (1998) refers to the food plants of this moth as being various grasses such as cock's-foot *Dactylis glomerata*, wood meadow grass *Poa nemoralis* and wood rush *Luzula* spp., it seems likely that within culm grassland sites it feeds on some other grass, since none of the above are frequent in the habitat. Spalding (1989) has found the Double Line to be chiefly an open moorland species in Cornwall. The strong-flying, but elusive, Narrow-bordered Bee Hawk-moth is also a species of open sites: the author and others have seen it on several culm grasslands over the last decade.

The importance of the open sward for a number of scarce and local moths adds weight to the standard recommendation (Wolton, 1992) that sites should not be burnt

or cut in their entirety at once, but that preferably half of each field should be left unburned and uncut each year. This is likely to be particularly important for the Narrow-bordered Bee Hawk-moth, which may have similar habitat requirements to the Marsh Fritillary butterfly.

Table 3. Numbers of species recorded in the present study in relation to the known larval food plants listed by Skinner (1984)

Food plants	Number of moth species recorded
Grasses only	20
Bedstraws (<i>Galium</i> spp.) only	7
Heather (<i>Calluna vulgaris</i>) only	2
Other plants typical of the open sward of Culm grassland	8
Only plants typical of open Culm grassland	37
Herbs not typical of Culm grassland (mostly ruderal)	11
Bramble (<i>Rubus fruticosus</i>) or rose (<i>Rosa</i> spp.) only	4
Willow (<i>Salix</i> spp.) only	14
Birch (<i>Betula</i> spp.) only	5
Oak (<i>Quercus</i> spp.) only	7
Other broadleaved trees and shrubs, or such trees and shrubs generally	47
Lichens	2
Only plants typical of woodland and scrub	90
Polyphagous	53
Miscellaneous	13

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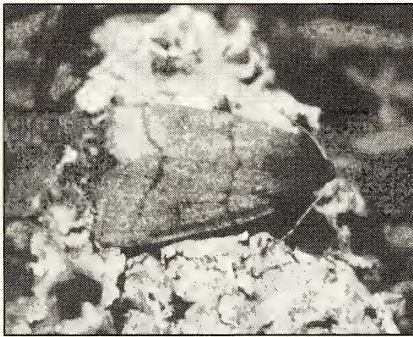


Figure 1. Double Line *Mythimna turca*

Picture: J. Breeds



Figure 2. Narrow-bordered Bee Hawk-moth

Hemaris tityus

Picture: P. L. Cook

APPENDIX 1. Description of the four study sites

Dunsdon Farm (grid reference SS 295078, altitude 130 metres) is located close to the Cornwall border between Holsworthy and Bude. The site is now a National Nature Reserve. The area sampled comprises a 27 hectare block of culm grassland divided into 14 small fields and bisected by the long-disused Bude Canal. The land to the west of the canal is largely covered by well-grazed, wet heath (NVC community M16b), with much heather, cross-leaved heath *Erica tetralix*, western dwarf gorse and creeping willow *Salix repens*, growing with purple moor grass, bog mosses, short sedges (especially *Carex panicea*) and abundant devil's-bit scabious among other herbs. That to the east is largely dominated by purple moor grass tussocks (NVC community M25c), although tufted hair grass *Deschampsia caespitosa* and meadowsweet are locally dominant. Very thick, tall, overgrown hedges that might more accurately be described as linear oak woodlands are frequent throughout the site, and patches of willow numerous. A conifer plantation lies to one side. The Bude Canal is now choked with reed grass *Phalaris arundinacea* and other wetland plants.

Coombe Meadow (grid reference SS 496022, altitude 80 metres), lying four kilometres to the west of Hatherleigh, consists of a single 5 hectare field which is a fine example of species-rich fen meadow (NVC community M24c), characterised by abundant purple moor grass and short sedges (especially *Carex hostiana*, *C. pulicaris* and *C. flacca*) interspersed with herbs such as meadow thistle, devil's-bit scabious, saw-wort *Serratula tinctoria* and heath spotted orchid *Dactylorhiza maculata*. A small part of the field and an adjacent one are dominated by rushes, especially sharp-flowered rush *Juncus acutiflorus*, with greater bird's-foot trefoil *Lotus uliginosus* and marsh bedstraw *Galium palustre* (NVC community M23b). Thick overgrown hedges and a small wood surround the field, dominated by oak, birch, hazel, willow and aspen *Populus tremula*.

Hollow Moor (grid reference SS 470015, altitude 120 metres), one kilometre further to the west, is a very large (170 hectare) site stretching along a shallow valley. Its vegetation ranges from rush pasture (NVC community M23a) dominated by soft rush *Juncus effusus* and grasses such as bents *Agrostis* spp. and Yorkshire fog *Holcus lanatus*, through species-rich fen meadow (NVC community M24c) as described for Coombe Meadow, to tussocky purple moor grass with much marsh thistle *Cirsium palustre* and wild angelica *Angelica sylvestris* (NVC community M25c). The site is liberally scattered with birch and willow bushes, especially eared willow *Salix aurita*, and with bramble *Rubus fruticosus* clumps. The valley stream is lined by a broad strip of woodland with oak, ash *Fraxinus excelsior*, birch and alder *Alnus glutinosa*.

Southmoor Farm (grid reference SS 564003, altitude 125 metres) lies midway between Okehampton and Hatherleigh. At the time of the survey it was a diverse 29 hectare site divided into eight fields – regrettably it has since been severely damaged. Well represented here were wet heath (NVC community M16b), species-rich fen meadow (NVC community M24c) and meadowsweet tall herb fen (M27c), all of which are referred to above. Small patches of bracken *Pteridium aquilinum* occurred, and the fields were bordered by strips of oak woodland, with much birch, willow and alder.

APPENDIX 2. The number of each species of macrolepidoptera recorded at the four study sites during 1987 and 1988

Key:

Column 1: B&F. = species numbers according to Bradley & Fletcher (1979)

Columns 4 - 7: Where actual numbers are not presented, the following codes are used: P = present (usually refers to day-flying species).

N = no trapping during flight period.

Column 8: The status is taken from Waring (1994, 1999)

B&F	Common name	Scientific name	Dunsdon Farm	Coombe Meadow	Hollow Moor	Southmoor Farm	National Status
0017	Common Swift	<i>Hepialus lupulinus</i> (L.)	4	0	0	1	Common
0170	Five-spot Burnet	<i>Zygaena trifolii</i> (Esp.)	P	P	P	N	Local
1632	Pale Eggar	<i>Trichiura crataegi</i> (L.)	1	0	2	N	Common
1634	Lackey	<i>Malacosoma neustria</i> (L.)	7	5	33	N	Common
1637	Oak Eggar	<i>Lasiocampa quercus</i> (L.)	0	0	1	N	Common
1638	Fox Moth	<i>Macrothylacia rubi</i> (L.)	6	1	0	0	Common
1640	Drinker	<i>Euthrix potatoria</i> (L.)	10	11	54	N	Common
1645	Scalloped Hook-tip	<i>Falcaria lacertinaria</i> (L.)	0	4	2	0	Common
1646	Oak Hook-tip	<i>Watsonalla binaria</i> (Hufn.)	0	2	0	0	Common
1648	Pebble Hook-tip	<i>W. falcataria</i> (Fabr.)	0	3	0	0	Common
1652	Peach Blossom	<i>Thyatira batis</i> (L.)	3	0	2	1	Common
1653	Buff Arches	<i>Habrosyne pyritoides</i> (Hufn.)	4	1	6	N	Common
1657	Common Lutestring	<i>Ochropacha duplaris</i> (L.)	1	1	0	N	Common
1660	Frosted Green	<i>Polyploca ridens</i> (Fabr.)	3	0	2	1	Local
1663	March Moth	<i>Alsophila aescularia</i> (D.& S.)	1	N	0	2	Common
1666	Large Emerald	<i>Geometra papilionaria</i> (L.)	0	3	4	N	Common
1669	Common Emerald	<i>Hemithoa aestivaria</i> (Hb.)	0	0	1	N	Common
1674	Little Emerald	<i>Jodis lactearia</i> (L.)	3	0	1	0	Common
1682	Blood-vein	<i>Timandra comae</i> (Schmidt)	2	0	0	0	Common
1693	Cream Wave	<i>Scopula floslactata</i> (Haw.)	1	0	0	0	Local
1702	Small Fan-footed Wave	<i>Idaea biselata</i> (Hufn.)	5	0	0	N	Common
1709	Single-dotted Wave	<i>I. dimidiata</i> (Hufn.)	0	0	3	N	Common
1713	Riband Wave	<i>I. aversata</i> (L.)	0	1	3	N	Common
1719	Oblique Carpet	<i>Orthonama vittata</i> (Borkh.)	0	4	18	4	Local
1727	Silver-ground Carpet	<i>Xanthorhoe montana</i> (D.& S.)	21	13	1	11	Common
1728	Garden Carpet	<i>X. fluctuata</i> (L.)	1	1	1	0	Common
1732	Shaded Broad-bar	<i>Scotopteryx chenopodiata</i> (L.)	2	30	4	N	Common
1733	Lead Belle	<i>S. mucronata</i> (Scop.)	P	1	0	0	Common
1738	Common Carpet	<i>Epirrhoe alternata</i> (Müll.)	1	0	4	0	Common
1739	Wood Carpet	<i>E. rivata</i> (Hb.)	1	0	0	N	Local
1742	Yellow Shell	<i>Camptogramma bilineata</i> (L.)	0	2	1	N	Common
1746	Shoulder Stripe	<i>Anticlea badiata</i> (D.& S.)	0	N	2	6	Common
1748	Beautiful Carpet	<i>Mesoleuca albicillata</i> (L.)	1	0	0	0	Common
1750	Water Carpet	<i>Lampropteryx suffumata</i> (D.& S.)	8	0	0	2	Common
1751	Devon Carpet	<i>L. otregiata</i> (Metcalfe)	0	1	0	0	Scarce (B)
1755	Chevron	<i>Eulithis testate</i> (L.)	0	0	10	N	Common
1758	Barred Straw	<i>E. pyraliata</i> (D.& S.)	4	0	5	N	Common
1759	Small Phoenix	<i>Ecliptopera silaceata</i> (D.& S.)	12	6	7	0	Common
1762	Dark Marbled Carpet	<i>Chlorocysta citrata</i> (L.)	2	0	0	N	Common
1764	Common Marbled Carpet	<i>C. truncata</i> (Hufn.)	2	7	12	0	Common

B&F	Common name	Scientific name	Dunsdon Farm	Coombe Meadow	Hollow Moor	Southmoor Farm	National Status
1765	Barred Yellow	<i>Cidaria fulvata</i> (Forster)	0	0	1	0	Common
1773	Broken-barred Carpet	<i>Electrophaes corylata</i> (Thunb.)	13	3	0	0	Common
1776	Green Carpet	<i>Colostygia pectinataria</i> (Knoch)	9	21	10	1	Common
1777	July Highflyer	<i>Hydriomena furcata</i> (Thunb.)	32	34	54	N	Common
1778	May Highflyer	<i>H. impluviata</i> (D.& S.)	0	1	0	0	Common
1779	Ruddy Highflyer	<i>H. ruberata</i> (Freyer)	9	2	6	0	Local
1817	Foxglove Pug	<i>Eupithecia pulchellata</i> Steph.	2	0	0	0	Common
1831	Ling Pug	<i>E. goossensiana</i> Mabille	1	0	0	0	Local
1834	Common Pug	<i>E. vulgata</i> (Haw.)	1	1	0	0	Common
1835	White-spotted Pug	<i>E. tripunctaria</i> H.- S.	1	0	0	0	Local
1851	Golden-rod Pug	<i>E. virgaureata</i> Doubleday	0	0	0	1	Local
1852	Brindled Pug	<i>E. abbreviata</i> Steph.	9	0	0	2	Common
1856	Larch Pug	<i>E. lariciata</i> (Freyer)	2	0	0	0	Common
1858	V-Pug	<i>Chloroclystis v-ata</i> (Haw.)	3	0	1	0	Common
1860	Green Pug	<i>C. rectangularata</i> (L.)	0	0	1	0	Common
1881	Early Tooth-striped	<i>Trichopteryx carpinata</i> (Borkh.)	18	N	3	0	Common
1884	Maggie Moth	<i>Abraxas grossulariata</i> (L.)	7	0	0	N	Common
1887	Clouded Border	<i>Lomasplitis marginata</i> (L.)	38	2	2	0	Common
1890	Sharp-angled Peacock	<i>Macaria alternata</i> (D.& S.)	7	2	1	1	Local
1893	Tawny-barred Angle	<i>M. liturata</i> (Cl.)	1	0	0	0	Common
1903	Barred Umber	<i>Plagodis pulveraria</i> (L.)	12	1	1	1	Local
1904	Scorched Wing	<i>P. dolabraria</i> (L.)	2	8	0	3	Local
1906	Brimstone Moth	<i>Opisthographis luteolata</i> (L.)	52	3	25	2	Common
1907	Bordered Beauty	<i>Epione repandaria</i> (Hufn.)	0	1	0	N	Common
1910	Lilac Beauty	<i>Apeira syringaria</i> (L.)	0	0	1	N	Local
1913	Canary-shouldered Thorn	<i>Ennomos alniaria</i> (L.)	0	7	3	N	Common
1915	September Thorn	<i>E. erosaria</i> (D.& S.)	0	0	5	N	Common
1917	Early Thorn	<i>Selenia dentaria</i> (Fabr.)	13	2	7	8	Common
1918	Lunar Thorn	<i>S. lunularia</i> (Hb.)	2	6	1	0	Local
1920	Scalloped Hazel	<i>Odontopera bidentata</i> (Cl.)	17	4	0	2	Common
1921	Scalloped Oak	<i>Crocallis elinguarina</i> (L.)	8	17	29	N	Common
1926	Pale Brindled Beauty	<i>Apocheima pilosaria</i> (D.& S.)	1	N	0	0	Common
1927	Brindled Beauty	<i>Lycia hirtaria</i> (Cl.)	2	N	6	19	Common
1930	Oak Beauty	<i>Biston strataria</i> (Hufn.)	4	N	0	0	Common
1931	Peppered Moth	<i>B. betularia</i> (L.)	9	13	2	7	Common
1935	Mottled Umber	<i>Erannis defoliaria</i> (Cl.)	1	0	0	N	Common
1941	Mottled Beauty	<i>Alcis repandata</i> (L.)	18	4	19	10	Common
1945	Brussels Lace	<i>Cleorodes lichenaria</i> (Hufn.)	0	6	1	3	Local
1948	Small Engrailed	<i>Stictopis crepuscularia</i> (D.& S.)	12	0	1	0	Local
1955	Common White Wave	<i>Cabera pusaria</i> (L.)	0	1	0	0	Common
1956	Common Wave	<i>C. exanthemata</i> (Scop.)	8	2	11	5	Common
1958	Clouded Silver	<i>Lamographa temerata</i> D.& S.	6	1	0	1	Common
1961	Light Emerald	<i>Campaea margaritata</i> (L.)	5	6	0	1	Common
1976	Privet Hawk-moth	<i>Sphinx ligustri</i> L.	2	0	0	0	Common
1980	Eyed Hawk-moth	<i>Smerinthus ocellata</i> (L.)	1	0	0	0	Common
1981	Poplar Hawk--moth	<i>Ataeha populii</i> (L.)	20	24	14	5	Common
1982	Narrow-bordered Bee Hawk-moth	<i>Hemaris tityus</i> (L.)	P	P	0	0	Scarce (B)
1991	Elephant Hawk-moth	<i>Deilephila elpenor</i> (L.)	1	0	1	0	Common
1994	Buff-tip	<i>Phalera bucephala</i> (L.)	2	0	6	0	Common
1995	Puss Moth	<i>Cerura vinula</i> (L.)	4	0	0	0	Common
1999	Lobster Moth	<i>Stauropus fagi</i> (L.)	0	4	3	0	Common
2000	Iron Prominent	<i>Notodonta dromedarius</i> (L.)	1	6	1	0	Common
2003	Pebble Prominent	<i>Notodonta ziczac</i> (L.)	34	2	2	3	Common

B&F	Common name	Scientific name	Dunsdon Farm	Coombe Meadow	Hollow Moor	Southmoor Farm	National Status
2005	Great Prominent	<i>Peridea anceps</i> (Goeze)	0	1	0	0	Local
2006	Lesser Swallow Prominent	<i>Peosia gnoma</i> (Fabr.)	2	3	7	6	Common
2007	Swallow Prominent	<i>P. tremula</i> (Cl.)	0	1	1	0	Common
2008	Coxcomb Prominent	<i>Ptilodon capucina</i> (L.)	4	1	3	1	Common
2011	Pale Prominent	<i>Pterostoma palpina</i> (Cl.)	8	4	0	0	Common
2014	Marbled Brown	<i>Drymonia dodonaea</i> (D.& S.)	3	10	0	0	Common
2015	Lunar Marbled Brown	<i>D. ruficornis</i> (Hufn.)	1	0	1	3	Local
2028	Pale Tussock	<i>Calliteara pudibunda</i> (L.)	8	1	0	3	Common
2033	Black Arches	<i>Lymantria monacha</i> (L.)	0	6	0	N	Local
2050	Common Footman	<i>Eilema lurideola</i> (Zinck.)	2	4	7	N	Common
2057	Garden Tiger	<i>Arctia caja</i> (L.)	1	0	14	N	Common
2060	White Ermine	<i>Spilosoma lubricipeda</i> (L.)	30	43	3	5	Common
2061	Buff Ermine	<i>S. lutea</i> (Hufn.)	43	10	2	7	Common
2063	Muslin Moth	<i>Diaphora mendica</i> (Cl.)	2	4	0	3	Common
2064	Ruby Tiger	<i>Phragmatobia fuliginosa</i> (L.)	1	7	4	0	Common
2069	Cinnabar	<i>Tyria jacobaeae</i> (L.)	0	0	P	0	Common
2078	Least Black Arches	<i>Nola confusalis</i> (H.- S.)	6	0	0	0	Local
2089	Heart And Dart	<i>Agrotis exclamationis</i> (L.)	9	1	3	0	Common
2091	Dark Sword-Grass	<i>Agrotis ipsilon</i> (Hufn.)	1	1	5	0	Migrant
2102	Flame Shoulder	<i>Ochropleura plecta</i> (L.)	31	57	79	1	Common
2107	Large Yellow Underwing	<i>Noctua pronuba</i> L.	77+	33	111	1	Common
2109	Lesser Yellow Underwing	<i>N. comes</i> Hb.	32	4	18	N	Common
2111	Lesser Broad-bordered Yellow Underwing	<i>N. janthe</i> (Borkh.)	17	4	10	N	Common
2112	Least Yellow Underwing	<i>N. interjecta</i> Hb.	3	0	2	N	Common
2118	True Lover's Knot	<i>Lycophotia porphyrea</i> (D.& S.)	7	1	14	3	Common
2120	Ingrailed Clay	<i>Diarsia mendica</i> (Fabr.)	65	6	11	1	Common
2122	Purple Clay	<i>D. brunnea</i> (D.& S.)	5	0	0	N	Common
2123	Small Square-spot	<i>D. rubi</i> (Viewig)	8	42	111	0	Common
2126	Setaceous Hebrew Character	<i>Xestia c-nigrum</i> (L.)	0	0	3	0	Common
2129	Double Square-spot	<i>Xestia triangulum</i> (Hufn.)	3	0	0	0	Common
2130	Dotted Clay	<i>X. baja</i> (D.& S.)	15	6	27	N	Common
2133	Six-striped Rustic	<i>X. sexstrigata</i> (Haw.)	1	0	8	N	Common
2134	Square-spot Rustic	<i>X. xanthographa</i> (D.& S.)	0	15	20	N	Common
2138	Green Arches	<i>Anaplectoides prasina</i> (D.& S.)	11	0	1	N	Common
2139	Red Chestnut	<i>Cerastis rubricosa</i> (D.& S.)	16	N	12	7	Common
2150	Grey Arches	<i>Polia nebulosa</i> (Hufn.)	1	1	0	1	Common
2155	Dot Moth	<i>Melanchna persicariae</i> (L.)	1	0	0	N	Common
2156	Beautiful Brocade	<i>Lacanobia contigua</i> (D.& S.)	5	0	0	0	Local
2158	Pale-shouldered Brocade	<i>L. thalassina</i> (Hufn.)	7	4	1	1	Common
2160	Bright-line Brown-eye	<i>L. oleracea</i> (L.)	0	0	1	0	Common
2163	Broom Moth	<i>Melanchna pisi</i> (L.)	1	0	0	0	Common
2173	Lychnis	<i>Hadena bicurvis</i> (Hufn.)	1	1	0	2	Common
2176	Antler Moth	<i>Cerapteryx graminis</i> (L.)	1	0	6	N	Common
2177	Hedge Rustic	<i>Tholera cespitis</i> (D.& S.)	0	1	12	N	Common
2178	Feathered Gothic	<i>T. decimalis</i> (Poda)	0	1	1	N	Common
2182	Small Quaker	<i>Orthosia cruda</i> (D.& S.)	4	N	14	27	Common
2186	Powdered Quaker	<i>O. gracilis</i> (D.& S.)	6	N	20	3	Common
2187	Common Quaker	<i>O. cerasi</i> (Fabr.)	10	N	18	50	Common
2188	Clouded Drab	<i>O. incerta</i> (Hufn.)	8	N	31	16	Common
2189	Twin-spotted Quaker	<i>O. munda</i> (D.& S.)	2	0	0	3	Common
2190	Hebrew Character	<i>O. gothica</i> (L.)	5	N	20	30	Common
2191	Double Line	<i>Mythimna turca</i> (L.)	23	19	59	1	Scarce (B)
2196	Striped Wainscot	<i>M. pudorina</i> (D.& S.)	26	14	2	1	Local

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2198	Smoky Wainscot	<i>M. impura</i> (Hb.)	19	22	53	N	Common
2225	Minor Shoulder-knot	<i>Brachyomyia viminalis</i> (Fabr.)	22	19	52	N	Common
2241	Red Sword-Grass	<i>Xylena vetusta</i> (Hb.)	0	0	2	2	Local
2243	Early Grey	<i>Xylocampa areola</i> (Esper)	2	0	3	17	Common
2248	Brindled Green	<i>Dryobotodes eremita</i> (Fabr.)	0	1	0	0	Common
2258	Chestnut	<i>Conistra vaccinii</i> (L.)	2	N	0	0	Common
2274	Sallow Moth	<i>Xanthia icteritia</i> (Hufn.)	0	2	5	N	Common
2278	Poplar Grey	<i>Acronicta megacephala</i> (D.& S.)	2	3	1	0	Common
2283	Dark Dagger	<i>A. tridens</i> (D.& S.)	0	0	1	0	Common
2289	Knot Grass	<i>A. rumicis</i> (L.)	0	3	0	0	Common
2297	Copper Underwing	<i>Amphipyra pyramidea</i> (L.)	0	5	5	N	Common
2299	Mouse Moth	<i>A. tragopoginis</i> (Cl.)	0	1	0	N	Common
2300	Old Lady	<i>Morma maura</i> (L.)	1	0	1	N	Local
2302	Brown Rustic	<i>Rusina ferruginea</i> (Esper)	42	0	0	0	Common
2305	Small Angle Shades	<i>Euplexia lucipara</i> (L.)	3	0	2	0	Common
2306	Angle Shades	<i>Phlogophora meticulosa</i> (L.)	2	1	8	0	Common
2311	Double Kidney	<i>Ipomorpha retusa</i> (L.)	0	2	0	N	Local
2318	Dun-bar	<i>Cosmia trapezina</i> (L.)	1	3	4	N	Common
2321	Dark Arches	<i>Apamea monoglypha</i> (Hufn.)	22	7	55	N	Common
2322	Light Arches	<i>A. lithoxylaea</i> (D.& S.)	1	0	0	N	Common
2326	Clouded-bordered Brindle	<i>A. crenata</i> (Hufn.)	7	1	1	0	Common
2330	Dusky Brocade	<i>A. remissa</i> (Hb.)	6	0	6	5	Common
2331	Small Clouded Brindle	<i>A. unanims</i> (Hb.)	0	1	0	0	Common
2338	Rufous Minor	<i>Oligia versicolor</i> (Borkh.)	3	0	4	N	Local
2340	Middle-barred Minor	<i>O. fasciuncula</i> (Haw.)	5	3	1	0	Common
2343	Common Rustic	<i>Mesapamea secalis</i> (L.)	5	5	13	N	Common
2343a	Lesser Common Rustic	<i>M. didyma</i> (Esper)	1	0	0	N	Local
2345	Small Dotted Buff	<i>Photodes minima</i> (Haw.)	21	0	2	N	Common
2350	Small Wainscot	<i>Photodes pygmina</i> (Haw.)	2	4	5	N	Common
2353	Flounced Rustic	<i>Luperina testacea</i> (D.& S.)	0	0	1	N	Common
2361	Rosy Rustic	<i>Hydaecia micacea</i> (Esper)	0	0	1	N	Common
2364	Frosted Orange	<i>Gortyna flavago</i> (D.& S.)	0	0	1	N	Common
2379	Small Rufous	<i>Coenobia rufa</i> (Haw.)	8	0	0	N	Local
2381	Uncertain	<i>Hoplodrina alsines</i> (Brahm)	1	0	0	N	Common
2422	Green Silver-lines	<i>Pseudoips prasinana</i> (L.)	0	0	0	1	Common
2425	Nut-tree Tussock	<i>Colocasia coryli</i> (L.)	9	3	0	4	Common
2434	Burnished Brass	<i>Diachrysa chrysiis</i> (L.)	6	0	26	0	Common
2439	Gold Spot	<i>Plusia festucae</i> (L.)	2	0	3	0	Common
2441	Silver Y	<i>Autographa gamma</i> (L.)	3	11	2	0	Common
2442	Beautiful Golden Y	<i>A. pulchrina</i> (Haw.)	18	11	7	0	Common
2450	Spectacle	<i>Abrostola tripartita</i>	2	0	0	0	Common
2463	Burnet Companion	<i>Euclidia glyphica</i> (L.)	2	P	0	0	Common
2469	Herald	<i>Scoliopteryx libatrix</i> (L.)	7	5	2	N	Common
2474	Straw Dot	<i>Rivula sericealis</i> (Scop.)	2	3	14	N	Common
2477	Snout	<i>Hypena proboscidalis</i> (L.)	3	0	0	N	Common
2484	Pinion-streaked Snout	<i>Shrankia costaestrigalis</i> (Steph.)	3	0	0	N	Local
2489	Fan-foot	<i>Zanclognatha tarsipennalis</i> (Tr.)	0	1	2	0	Common
Total number of individuals caught			1243+	704	1341	308	
Total number of species recorded			145	121	122	55	